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TITLE: Magnetic recording medium, non-magnetic acicular black iron-based composite particles and process for producing the particles

Brief Summary Text (34):

As a result of the present inventors' earnest studies for solving the above conventional problems, it has been found that by using as non-magnetic particles non-magnetic acicular black iron-based composite particles which comprise acicular hematite particles or acicular iron oxide hydroxide particles as core particles; a coating layer formed on the surface of each core particle, at least one organosilicon compound; and a carbon black coat formed on at least a part of the surface of the coating layer in an amount of 21 to 50 parts by weight based on 100 parts by weight of the acicular hematite particles or acicular iron oxide hydroxide particles, and which have an average major axial diameter of 0.011 to 0.35 μm and a myristic acid absorption of 0.01 to 0.3 mg/m.sup.2, the obtained magnetic recording medium can exhibit a smooth surface, a lower light transmittance, a lower surface resistivity value, a low friction coefficient and an excellent running property. The present invention has been attained on the basis of this finding.

Brief Summary Text (48):

a carbon black coat formed on at least a part of the coating layer comprising the organosilicon compound, in an amount of 21 to 50 parts by weight based on 100 parts by weight of the acicular hematite particles or acicular iron oxide hydroxide particles.

Brief Summary Text (59):

a carbon black coat formed on at least a part of the coating layer comprising the organosilicon compound, in an amount of 21 to 50 parts by weight based on 100 parts by weight of the acicular hematite particles or acicular iron oxide hydroxide particles.

Brief Summary Text (68):

a carbon black coat formed on at least a part of the coating layer comprising the organosilicon compound, in an amount of 21 to 50 parts by weight based on 100 parts by weight of the acicular hematite particles or acicular iron oxide hydroxide particles.

Brief Summary Text (78):

a carbon black coat formed on at least a part of the coating layer comprising the organosilicon compound, in an amount of 21 to 50 parts by weight based on 100 parts by weight of the acicular hematite particles or acicular iron oxide hydroxide particles.

Brief Summary Text (84):

a carbon black coat formed on at least a part of the coating layer comprising the organosilicon compound, in an amount of 21 to 50 parts by weight based on 100 parts by weight of the acicular hematite particles or acicular iron oxide hydroxide particles.

Brief Summary Text (91):

a carbon black coat formed on at least a part of the coating layer comprising the organosilicon compound, in an amount of 21 to 50 parts by weight based on 100 parts by weight of the acicular hematite particles or acicular iron oxide hydroxide particles.

Brief Summary Text (111):

a carbon black coat formed on at least a part of the coating layer comprising the organosilicon compound coated, in an amount of 21 to 50 parts by weight based on 100 parts by weight of the acicular hematite particles or acicular iron oxide hydroxide particles.

Brief Summary Text (168):

The total amount of carbon black adhered is 21 to 50 parts by weight based on 100 parts by weight of the core particles.

Brief Summary Text (281):

A point of the present invention lies in such a fact that in the case where the carbon black is strongly bonded onto the surface of each core particle in an amount as large as 21 to 50 parts by weight based on 100 parts by weight of the core particles, it is possible to obtain acicular black composite particles having a myristic acid absorption of 0.01 to 0.3 mg/m.^{sup.2}.

CLAIMS:

1. A magnetic recording medium comprising:

a non-magnetic base film;

a non-magnetic undercoat layer formed on said non-magnetic base film, comprising a binder resin and non-magnetic acicular black iron-based composite particles; and

a magnetic coating film formed on said non-magnetic undercoat layer, comprising a binder resin and magnetic particles,

said non-magnetic acicular black iron-based composite particles comprising:

acicular hematite particles or acicular iron oxide hydroxide particles having an average major axis diameter of 0.01 to 0.3 .mu.m;

a coating layer formed on the surface of said acicular hematite particle or acicular iron oxide hydroxide particle, comprising at least one organosilicon compound selected from the group consisting of:

(1) organosilane compounds obtained from an alkoxysilane compounds, and

(2) polysiloxanes or modified polysiloxanes; and

a carbon black coat composed of at least two carbon black layers integrally adhered with each other through an adhesive, formed on at least a part of said coating layer comprising said organosilicon compound in an amount of 21 to 50 parts by weight based on 100 parts by weight of said acicular hematite particles or acicular iron oxide hydroxide particles.

18. Non-magnetic acicular black iron-based composite particles comprising:

acicular hematite particles or acicular iron oxide hydroxide particles having an average major axis diameter of 0.01 to 0.3 .mu.m;

a coating layer formed on the surface of said acicular hematite particle or acicular iron oxide hydroxide particle, comprising at least one organosilicon compound selected from the group consisting of:

(1) organosilane compounds obtained from an alkoxysilane compounds, and

(2) polysiloxanes or modified polysiloxanes; and

a carbon black coat composed of at least two carbon black layers integrally adhered with each other through an adhesive, formed on at least a part of said coating layer comprising said organosilicon compound, in an amount of 21 to 50 parts by weight based on 100 parts by weight of said acicular hematite particles or acicular iron oxide hydroxide particles.